CLAIMS

What is claimed is:

1. A method for managing power consumption in an electronic system, comprising:

providing a first processor of the system with a first task to perform;

providing a second processor of the system with a second task to perform, wherein performance of the second task will use a result of the performance of the first task; and

requesting an adjustment to an operating point of one of the first and second processors to better manage power consumption in the electronic system, based on the time between completion of the second task and its deadline.

2. The method of claim 1 wherein the requested adjustment is to decrease the frequency of a processor clock if said time indicates that the deadline was met.

3. The method of claim 1 wherein the requested adjustment is to increase the frequency of a processor clock if said time indicates that the deadline was not met.

4. The method of claim 1 wherein the first and second tasks relate to describing and rendering images by the system, the method further comprising computing the deadlines of the first and second tasks based on a target frame rate for displaying images.

5. The method of claim 1 further comprising measuring the amount of time needed for the first processor to complete the first task and the amount of time needed for the second processor to complete the second task, wherein the requested adjustment is based on said measurements.

6. The method of claim 4 further comprising:

signaling an interrupt to the first processor by the second processor upon the completion of the second task.

7. The method of claim 6 wherein the first and second processors perform their respective tasks according to triple buffered graphics processing.

8. A method comprising:

providing a processor with a workload that has a real-time demand; and

setting a processor clock frequency requirement for the processor based on a deadline margin for the real-time demand.

9. The method of claim 8 wherein the real-time demand is a target frame rate for displaying image frames.

10. The method of claim 9 wherein the margin is a measurement of the time between (i) completion by the processor of identifying one or more graphics surfaces in an image, and (ii) a start of rendering the one or more graphics surfaces.

11. The method of claim 9 wherein the margin is computed based on (i) an estimate of the time needed by the processor to identify one or more graphics surfaces in an image, (ii) an estimate of the time needed to render the one or more graphics surfaces, and (iii) the target frame rate.

12. The method of claim 9 wherein the margin is a measurement of the time between (i) completion by the processor of rendering an image, and (ii) a start of displaying the image.

13. The method of claim 9 wherein the margin is computed based on (i) an estimate of the time needed by the processor to render an image, and (ii) the target frame rate.

14. A system comprising:

a central processing unit (CPU);

a graphics controller coupled to the CPU;

a monitor coupled to the graphics controller; and

memory containing instructions that, when executed by the CPU, (i) identify models of surfaces to be rendered in an image, wherein the image is to be rendered by the graphics controller and then displayed on the monitor in accordance with a target frame rate, and (ii) specify an operating point for one

of the CPU and graphics controller, based on a deadline margin for the target frame rate.

15. The system of claim 14 wherein the operating point is a value that represents one of (i) a clock frequency, (ii) an offset to the frequency of a clock, and (iii) a direction of increase or decrease in the frequency of a clock.

16. The system of claim 14 wherein the instructions, when executed by the CPU, specify the operating point of the graphics controller based on the time between when a rendering task is finished by the graphics controller and a deadline of the task.

17. The system of claim 16 wherein the instructions, when executed by the CPU, specify the operating point of the CPU based on the time taken by the CPU to finish specifying the mathematical models of graphics objects in an image and the time taken by the graphics controller to render the image.

18. The system of claim 14 wherein the instructions, when executed by the CPU, specify the operating points for the CPU and the graphics controller, based on values recorded in the system that represent an actual elapsed time needed to completely render an image by the graphics controller and an actual elapsed time needed to complete the identification of the models of graphics objects in said image by the processor.

19. The system of claim 14 wherein the specified operating point is one of a high performance mode and a low performance mode for the CPU.

20. The system of claim 19 wherein in the high performance mode, the CPU operates at a higher clock frequency and at a higher supply voltage than in the low performance mode.

21. An article of manufacture comprising:

a machine-readable medium which has data that, when accessed by a processor, requests an operating point requirement for a target processor to (i) reduce power consumption by the target processor while the target processor performs the workload and (ii) meet a plurality of completion deadlines for a

plurality of tasks in the workload, wherein the requested requirement is based on an elapsed time between completion of a task and its deadline.

22. The article of manufacture of claim 21 wherein the data is to define the requested operating point requirement as a decrease in the frequency of an operating clock for the processor.

23. The article of manufacture of claim 21 wherein the data is part of a computer operating system program.

24. The article of manufacture of claim 21 wherein the data is part of a computer system driver program.